

**AN IN SITU HARDMASK PULLBACK USING
AN IN SITU PLASMA RESIST TRIM PROCESS**

ABSTRACT OF THE DISCLOSURE

The present invention provides a process of manufacturing an isolation structure for use in a semiconductor device. The process includes forming an opening in a substrate through a patterned photoresist layer 225 and a hardmask layer 215 located over the substrate 205 with plasma, trimming the photoresist layer 225 with a plasma to create an exposed portion 215a of the hardmask layer 215, removing the exposed portion 215a with a plasma to create a trench guide opening 227, and creating a trench 230 through the trench guide opening 227 with a plasma.